

WHAT WE CLAIM ARE:

1. A solid state image pickup device comprising:
  - a semiconductor substrate defining a two-dimensional surface;
  - a number of photoelectric conversion elements disposed in a light receiving area of said semiconductor substrate in a matrix shape and in a plurality of rows and columns;
  - signal processors, each formed for each column of said photoelectric conversion elements in an area of said semiconductor substrate other than the light receiving area, said signal processor at least converting analog image data from said photoelectric conversion elements into digital image data; and
  - a non-volatile memory formed in correspondence with respective photoelectric conversion elements in an area of said semiconductor substrate other than the light receiving area at a succeeding stage of said signal processor, said non-volatile memory recording the digital image data.
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2. A solid state image pickup device according to claim 1, wherein said non-volatile memory record the digital image data of one frame.
3. A solid state image pickup device according to claim 1, wherein said non-volatile memory record the digital image data of a plurality of frames.
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4. A solid state image pickup device according to claim 1, further comprising erasing means for erasing the digital image data after the digital image data stored in said non-volatile memory is read to an external.

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5. A solid state image pickup device according to any one of claims 1, wherein addresses of said non-volatile memory in a vertical direction is related to addresses of the light receiving area in the vertical direction.

5 6. A solid state image pickup device according to claim 1, further comprising a data register used in common for both data input and output for said non-volatile memory.

7. A solid state image pickup device according to claim 1, wherein said 10 non-volatile memory has a depth of same bits as output bits of said signal processor provided for each column.

8. A solid state image pickup device according to claim 1, wherein each 15 of said signal processors outputs the digital image data of one row of said photoelectric conversion elements in parallel , and said non-volatile memory records the digital image data of one row output parallel at a memory position corresponding to a row direction.

9. A solid state image pickup device according to claim 1, wherein said 20 non-volatile memory is a NAND type transistor memory.

10. A solid state image pickup device according to claim 1, wherein said non-volatile memory is a NOR type transistor memory.

25 11. A solid state image pickup device according to claim 9, wherein the

transistor memory has a floating gate type transistor memory structure.

12. A solid state image pickup device according to claim 9, wherein the transistor memory has a MONOS type transistor memory structure.

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13. A solid state image pickup device according to claim 9, wherein the transistor memory is a ferroelectric memory.

14. A solid state image pickup device according to claim 1, further  
10 comprising a CCD for reading charges from said photoelectric conversion elements in the light receiving area and transfers analog image data to said signal processor provided for each column.

15. A solid state image pickup device according to any one of claim 1,  
15 further comprising a MOS circuit for reading charges from said photoelectric conversion elements in the light receiving area and transfers analog image data to said signal processor provided for each column, and wiring lines.

16. A solid state image pickup device according to claim 1, further  
20 comprising:  
a shutter control unit; and  
an optical system, and wherein  
said solid state image pickup device works as a digital camera.

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